

ABSTRACT OF THE DISCLOSURE

Embodiments of the invention provide a method for producing ferroelectric polymer devices (FPMDs) employing conditions that avoid or reduce detrimental impact on the ferroelectric polymer film. For one embodiment, a damascene patterning metallization technique is used. For one embodiment a first metal layer is deposited on a substrate to form the bottom electrode for the FPMD. The first metal layer is capped with a selectively deposited diffusion barrier. A layer of ferroelectric polymer film is then deposited on the first conductive layer. The ferroelectric polymer film is planarized. A second metal layer is deposited on the ferroelectric polymer film layer to form the top electrode of the FPMD. The second metal layer is deposited such that the ferroelectric polymer film is not substantially degraded. For various alternative embodiments the various component processes may be accomplished at temperatures far below those employed in a conventional damascene patterning metallization process.